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Notes of a naturalist afloat—V

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SANTA CRUZ

The Danish island of Santa Cruz, or Saint Croix, lies a short distance to the southeastward of Porto Rico, in latitude $17^{\circ} 45'$ North. Its surface is hilly, especially along its north coast, but the soil is very fertile and produces considerable sugar, while Santa Cruz rum is famous throughout the world. Though the climate is tropical it is tempered throughout at least eight months of the year by the trade winds, and it is only during the rainy summer months that the heat is oppressive. Though the island belongs to Denmark, English is the common medium of communication. The language spoken by the negroes, however, is a peculiar jargon which can scarcely be understood by an Englishman or an American new to the island.

The *Powhatan* arrived at Santa Cruz on the evening of February 23, 1882, having stopped for target practice on her way from Samana Bay, Santo Domingo. As we approached the island the deep sapphire sea changed to a turquoise blue and then to a lovely emerald green. We could not enter the harbor of Christiansted, or Bassin, on the north shore, on account of the shallow depth of its entrance, but we came to anchor on the leeward side of the island, about a quarter of a mile off shore from Fredericksted, or West End. From our anchorage the island was most picturesque, with its long curved

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coast line, suggesting the shore of the Bay of Naples, and its volcanic hills with their slopes covered with verdure, principally with patches of apple-green sugar cane. With our glasses we could make out a number of Spanish-looking buildings, with verandas and archways, surmounted here and there by plummy crests of palm trees; but on going ashore we were disappointed in the town. Most of the old masonry foundations bore flimsy wooden superstructures, many of them comparatively new and unpainted; for a great part of the town had only recently been rebuilt after having been burned by the blacks during labor riots, and many of the business houses and dwellings still lay in ruins.

Owing to the shortness of our visit and to my official duties on board ship it was not possible for me to do any systematic botanical work on the island; but I carried with me in the form of a small pamphlet a flora of the island by Baron Eggers, which had been recently issued by the United States National Museum.¹ With its aid I was able to determine the botanical names of many of the plants and fruits I saw, a great proportion of which were introduced species. Afterwards I added to my notes by consulting the collections made on the island by Professor A. E. Ricksecker and his mother in the years 1895-97. These are represented in the United States National Herbarium by nearly 1,000 numbers, and are referred to in detail together with those of Baron Eggers in Dr. Millspaugh's *Flora of St. Croix*.²

In the immediate vicinity of Fredericksted the country has not much of interest to offer a botanist. Many of the plants are cosmopolitan weeds, such as *Asclepias curassavica*, *Waltheria americana*, *Bidens bipinnata*,

¹ Eggers, Baron H. F. A. *The Flora of St. Croix and the Virgin Islands*. U. S. National Museum Bull. 13. 1879.

² Millspaugh, Charles Frederick. *Flora of the Island of St. Croix*. Field Columb. Mus. Publ. Bot. 1: 441-546. 1902.

Synedrella nodiflora, *Eclipta alba*, *Lantana camara*, and a number of Malvaceae and Leguminosae. Among the former are the yellow-flowered *Sida rhombifolia*, *S. ciliaris*, *S. carpinifolia*, *Malvastrum spicatum*, *Abutilon indicum*, and the common *Hibiscus vitifolius*. Among the leguminous plants were several low Cassias, one of which, *Cassia occidentalis*, is known by the not very pretty but very appropriate name "stinking weed." Indeed, many of the vulgar names applied to plants on the island of St. Croix and on other islands of the West Indies where English is spoken are brutally vulgar, and some of them can scarcely be presented in print. This is in striking contrast to the pretty names applied by the French, who have a tendency to euphemize unpleasant epithets. Thus, *Triumfetta lappula* and *T. semitriloba*, which on the French islands are called great cousin and little cousin, are here simply "bur-bushes"; and for *Poinciana pulcherrima*, so prettily named the flower of paradise by the Haitians, we have only "flower fence" or the remarkable name *dudeldu*. Some of the names are an amusing combination of English and Creole French, as "jackass calalu" for *Guazuma ulmifolia*, calalou being the general name in the French islands for all potherbs.

The strand flora of the island is very similar to that of all the Antilles. Here as elsewhere the coconut palm lends its peculiar charm. The sea grape (*Coccoloba uvifera*) attracts attention by its broad leaves and its inviting clusters of fruit. The latter is scarcely edible raw, but it is sometimes made into preserves. The coco plum (*Chrysobalanus icaco*) may easily be recognized by its glossy obcordate leaves and its pink-tinged, astringent, plumlike fruit. Other common strand plants are *Heliotropium curassavicum* and *Tournefortia gnaphalodes*. As elsewhere, the seaside convolvulus, *Ipomoea pes-caprae*, spreads over great areas of the

beach, with stems almost a hundred feet long; and near the beach are thickets of the prickly catsclaws (*Guilandina crista*) that bear the hard polished gray nicker-nuts.

On the rocky cliffs the vegetation is of a more xerophytic character, including species of *Agave*, Cactaceae, the thick-stemmed lactiferous *Plumeria alba*, belonging to the Apocynaceae, with large white jasminelike flowers; and *Jacquinia armillaris*, called baysallie or bracelet wood, which has evergreen glossy leaves, clusters of bright red flowers and yellow fruits, the seeds of which are strung into bracelets and necklaces.

The mangrove formations are composed of the same species as those noticed on the islands of Porto Rico, Hispaniola, and on the Florida Keys. Farther inland, growing in moist situations, occur *Bucida buceras*, here called gregry, which yields valuable timber; and *Annona palustris*, the fruit of which is here called monkey apple and is used as a bait for mangrove snappers and other fish.

In dry situations the vegetation is often composed of scrubby bushes including several species of *Croton*: *Croton flavens*, called maran; *Croton flavens rigidus* called yellow maran; *Croton astroites*, called white maran; and *Croton discolor*. These plants yield a bitter aromatic bark very much like cascarilla and the copalchi bark of Mexico, and are used for the same purposes. The common maran may possibly be derived from cascara mariana, or cascara de Santa Maria. In Porto Rico, where the name Santa Maria cimarrona, or wild St. Mary's bush is applied to *Croton flavens rigidus*, the plant is used medicinally, and the young twigs are used in baths. Other plants growing in dry situations are the sweet-scented *Acacia Farnesiana* and the closely allied *A. tortuosa*, here called cashew, species of Cactaceae and other forms similar to those growing in the southwestern portion of Haiti.

As in most countries that have a distinct dry and rainy season, certain shrubs and trees are deciduous. Among them are *Annona squamosa*; *A. reticulata*; *Ceiba pentandra*, the silk-cotton tree, which sometimes attains gigantic proportions; *Hura crepitans*, the sandbox; *Spondias lutea*, the hog plum; *Sabinea florida*, a leguminous tree somewhat like our *Robinia pseudacacia*; *Erythrina corallodendron*, the coral tree; and *Poinciana regia*, the flamboyant.

Among the evergreen species are the glossy-leaved *Annona muricata*; the monkey apple, *A. glabra*; the Santa Maria, *Calophyllum calaba*, distinguished by its beautiful fine-veined leaves; several species of Sapotaceae, including the sapodilla, which is here called mespel, and the star apple (*Chrysophyllum cainito*); and among the Rutaceae, in addition to the ordinary citrus fruits, the orangeberry (*Triphasia trifoliata*), which is well adapted for hedges and often forms dense thickets, and the so-called jumbee apple (*Tobinia punctata*).

Climbing in the hedgerows and thickets are *Passiflora foetida*, the greenish flowers of which have a finely divided calyx like the common love-in-a-mist; *Clitoria ternatea* with deep blue pealike blossoms; the tobacco-pipe vine (*Aristolochia trilobata*) and crane's neck (*Aristolochia anguicida*); the Asclepiadaceous *Metastelma Schlechtendalii*; and a number of Convolvulaceae. Among the climbing plants of the forests are species of *Serjania*, *Bignonia*, *Cissus*, and *Philodendron*, similar to those on Porto Rico and Hispaniola; and perched upon the limbs are a few orchids, several Bromeliaceae, and several epiphytal ferns.

Beneath the trees herbaceous plants are not so abundant as in most of the other islands of the West Indies. Several species of *Piper* and *Peperomia* occur, associated with a few mosses, lycopods, and ferns.

One of the best regions for ferns is the Crequis Valley,

which reaches the coast about two miles north of Fredericksted. In this valley there is an enormous silk-cotton tree (*Ceiba pentandra*) regarded with superstitious reverence by the negroes, who call it the jumbee tree and resort to it to practice the rites of the Obeah worshippers. Through the bottom of this valley flows a perennial stream, here called a "gut," a most offensive word to my ears. Among the ferns growing here are several species of *Dryopteris*, *Blechnum occidentale* and *Adiantum fragile*. Near the crest of Mount Eagle, about 1150 feet high, occur *Adiantum villosum* and *Polypodium phyllitidis*. The pretty silvery fern *Ceropteris calomelaena*, the delicate maidenhair *Adiantum tenerum*, and *Pteris longifolia* occur here and there on old damp walls. The golden fern, *Ceropteris sulphurea*, is sometimes seen in cultivation; and the interesting strawberry fern, *Hemionitis palmata*, which propagates itself by buds from the serratures of the fronds, occurs in patches in the shady forests, in dry rocky soil, as at Eliza's Retreat. In dry, xerophytic situations, the only fern thus far collected is *Cheilanthes microphylla*. *Polypodium Swartzii* (*P. serpens* Baker) climbs shrubs and trees on rocky hills; *P. polypodioides* (*P. incanum*) occurs among the roots of large trees, and the widely spread *P. aureum* on rocks and dead trees in the forest; and *Dryopteris tetragona* is not uncommon in the woods. *Blechnum occidentale* is frequent both in the woods and in pastures, and *Nephrolepis biserrata* grows here as elsewhere on the trunks and limbs of trees. Another allied species, locally known as the princess' feather, is *Nephrolepis exaltata*, one of the favorite ferns for pots and hanging baskets. In marshy places occurs the widely spread *Acrostichum aureum* (*Chrysodium vulgare* Fée), which grows in similar situations throughout the tropics of both hemispheres. No Hymenophyllaceae have thus far been collected on the island of Santa Cruz.

The fruits of the island are plentiful and of good quality, though very little attention is paid to their cultivation. I was told that in the houses of nearly every family fruit appears on the table three times a day, and that there is no time during the year in which it is lacking, though the mangos, oranges, and bread-fruit have certain definite seasons. Lemons and limes are produced continuously, and one sort of fruit replaces another in rapid succession. Guavas (*Psidium guajava*) are very common and make excellent jelly and preserves. In some places guava bushes cover large tracts, like those I afterwards saw on the island of Hawaii and elsewhere, often struggling with such weeds as *Lantana camara* and the sensitive plant (*Mimosa pudica*) for supremacy. The so-called "cherries" of the island, pretty, bright red little fruits, proved to be *Malpighia glabra*. The "plums" were species of *Spondias*, belonging to the Anacardiaceae, the family to which our sumacs and the mango belong. *Spondias lutea*, with yellow fruit, is called hog plum; while *S. purpurea*, with purple fruit, is here known as the Jamaica plum. Another fruit of this family is *Anacardium occidentale*, here called cashew, its fruit known as the cashew apple, is merely the enlarged pearshaped fleshy receptacle, at the extremity of which is borne the kidneyshaped cashew nut. This has a rich oily kernel, but its shell must be carefully removed, as it is so acrid as to blister the skin.

Among the Annonaceae are several that bear edible fruits. The soursop (*Annona muricata*) has a heart-shaped fruit often as big as a child's head, with a smooth green skin bearing soft prickles and with white fleshy pulp of a pleasantly acidulous taste. This makes excellent jelly and preserves; but the ill-tasting skin must be removed before the fruit is ready for the table. The fruits appear enormous when compared with the size

of the tree, which is often no larger than a peach tree, and they grow sometimes directly out of the trunk or the bark of the older limbs as though the branches could not bear their weight. Another popular fruit is the sugar apple (*Annona squamosa*) with pulp like sweet creamy custard. It is often planted near houses and produces several crops a year. The bullock's heart, or common custard apple (*Annona reticulata*), is less popular with the islanders. When ripe it is usually reddish and solid with its surface covered with impressed reticulated lines; while the sugar apple is at first glaucous green and then yellowish with its surface divided into easily separable tubercles corresponding to the individual carpels composing it.

Pineapples of excellent quality are produced. In many places they appear to grow spontaneously. The wild pineapple or pinguin (*Bromelia pinguin*) with stiff sharp-pointed leaves armed with stout marginal spines is used in hedges. It certainly forms an impassable barrier. Another plant of the same family, also called wild pine, is *Tillandsia utriculata*, usually perched upon trees or rocks, with the inflorescence in the form of a loose pyramidal panicle of greenish flowers, sometimes 2 meters high. *Tillandsia usneoides* and *T. recurvata*, called old man's beard, are also common on limbs of trees and shrubs; the latter is sometimes used for stuffing mattresses and cushions. The introduced *Aloe vulgaris* forms broad patches in dry limestone situations and is locally known as "sempervivie" (from the Spanish *siempre-viva*). The so-called American aloe (*Agave sp.*) also occurs and is here known as karatá, while a species of *Fourcroya* is known as the female karatá on account of the bulblets borne by the branches of its inflorescence.

Among the edible roots and tubers are the sweet potato (*Ipomoea batatas*), yams (*Dioscorea sativa* and *D. alata*), *Xanthosoma sagittifolium* called tanier, and *X.*

atrovirens which is appropriately named "scratch-throat" on account of its irritating microscopic needle-like raphides.

On one of my excursions I visited the estate of a Mr. Roberts, situated a short distance to the northward of Fredericksted, where I was most cordially received and was entertained with some interesting stories, the most thrilling of which was an account of the stranding of the United States Ship *Monongahela* by a great tidal wave. The catastrophe occurred on the afternoon of Nov. 18, 1867. The ship was lying off the town very near where our ship had anchored, when suddenly a severe earthquake shock was felt and the vessel was lifted up by a great wave and carried completely over the tops of the warehouses near the shore into one of the streets but came back with the returning sea and was deposited on an even keel at the water's edge. Fortunately only five of her crew were lost, and she sustained so little injury that it was possible to relaunch her about six months later. In the meantime one of the officers who remained attached to her, Lieutenant Commander (afterwards Rear Admiral) Harrington succeeded in winning the hand of one of the most attractive young ladies of the island; and it was here also that Rear Admiral Howell found his bride.

The following year, on Aug. 13, 1868, while the *Powhatan* was flagship of the South Pacific squadron, she herself narrowly escaped a similar experience in the harbor of Callao, when a similar wave swept the Peruvian coast. This completely destroyed the store ship *Fredonia*, anchored off the town of Arica, and carried the United States Ship *Wateree* 500 yards inland leaving her high and dry on the sandy plain. I have often heard the story telling how the commanding officer ordered the purchase of several mules for the convenience of traveling back and forth from the neighboring town. The lower booms of the ship were rigged out and the pendants

to which the ship's boats were usually secured were utilized for hitching the mules. One of the latter was christened by the sailors the "Captain's Gig;" another was the "First Cutter," for the use of the ward-room officers, and so on; and when the captain or an officer wished to leave the ship the boatswain's mate would give a blast on his whistle and call out, "Away the Gig!" or "Away the First Cutter!" whereupon a sailor would run out on the boom, descend by the Jacob's ladder to the ground and bring the gray or the white mule around to the foot of the starboard gangway ladder. After a careful examination of the *Wateree* it was deemed inexpedient to attempt to relaunch her, and she was accordingly sold.

Mr. Roberts gave me some delicious sherbet made from the pulp of the fruit of a passion flower (*Passiflora laurifolia*) here known as the bell apple. He gave me a list of the principal island fruits, among which in addition to those already mentioned were the kenep (*Melicocca bijuga*), the breadfruit, the mango, the mammy apple or mummy apple (*Mammea americana*), the alligator pear (*Persea gratissima*), which the English officers sometimes call midshipmen's butter; the papaw (*Carica papaya*), the leaves of which are said to make meat tender; and the common calabash tree (*Crescentia cujete*), which yields gourdlike kitchen utensils. The pods of the acacialike tamarind tree contain an acidulous pulp from which a refreshing and wholesome drink is prepared. The tamarind is an admirable shade tree with its broad spreading branches. Another handsome shade tree is *Pithecolobium saman*, and on this island I saw for the first time mahogany trees planted along the roadside for shade.

In recalling the negro uprising of 1878 Mr. Roberts told me of the terrible atrocities committed by the blacks, and of how messengers were sent to the outlying plantations to warn the planters of the impending danger. I

was much impressed with the names given to some of the plantations on the island; such as, "Anna's Hope, Peter's Rest, Judith's Fancy, Parasol Hill, Jealousy, Rustup Twist, Eliza's Retreat." They suggested a romantic early history, and they recalled the story of Paul and Virginia and their lovely tropical island on the opposite side of the globe, where many of the same trees and fruits and ornamental plants must have grown as those on Santa Cruz. Many of these local names are perpetuated on the labels of collections in the United States National Museum, especially among the specimens collected by Mrs. Ricksecker and her sons.

On my taking leave of Mr. Roberts he gave me a few bulbs from his old garden, including those of a white spider lily (*Hymenocallis caribaea*), a handsome red amaryllis (*Hippeastrum equestre*), and the beautiful little *Zephyranthes rosea*. Although these were in bloom at the time, they were not injured by being torn up. I dried them and at the end of the cruise took them home, where for many years they continued to bloom in my mother's garden, though they had to be taken up each year and protected through the winter.

The following evening we weighed anchor and steamed to the southeastward, bound for the French Island of Guadeloupe.

Roughing it to the Yosemite

H. HARWOOD TRACY

Many of the members of the Fern Society who live within easy reach of the woods or the mountains may find it hard to realize the feeling that a lover of ferns must have when he is situated so that he can not see a fern growing in its native haunts without a trip of over 35 miles, and that trip over hard roads. This has been my experience for the last two years, and so it was with